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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,629	06/25/2001	Jean-Marc Frances	RN 98131	3024

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EXAMINER

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 08/01/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/806,629		FRANCES, JEAN-MARC	
	<b>Examiner</b>		<b>Art Unit</b>	
	Marc S. Zimmer		1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-19 is/are rejected.
- 7) ☒ Claim(s) 12-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \*   c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

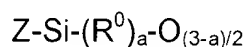
**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> | 6) <input type="checkbox"/> Other: _____                                    |

***Claim/Specification Objections***

Claims 12 through 19 are objected to for numerous reasons as follows:

(a) Applicant has, in the base claim, represented the mandatory unit of the silicone polymer as,



wherein  $\text{R}^0$  is a monovalent substituent that is bonded directly to silicon. As the unit is depicted,  $\text{R}^0$ , itself, appears to be a repeat unit numbering zero-to-two and, further, seems to be also bonded to an oxygen atom. The same formula is provided on page two of the Specification. In each instance, the formula should be amended such that it is unambiguous as to what the connectivity of the structural units. For example,  $\text{R}^0$  could be drawn directly above or below the silicon atom.

(b) Under the heading of compound (4), Applicant refers to a cationic borate entity when it is clear from the disclosure that said entity comprises the anionic portion of compound (4).

(c) Applicant makes reference to aromatic "nuclei" in their description of the photosensitizer. This characterization is repugnant to that word's generally accepted meaning and hence should be amended to, for instance, "group" or "radical".

(d) In page 4, line 4, "saidligand(s)" should be two words.

(e) In delineating the parameter "q", Applicant provides an awkward description that might better be expressed as, "; q denotes the total electronic charge of the complex to which  $\text{L}^1$ ,  $\text{L}^2$ , and  $\text{L}^3$  contribute and..."

(f) In claim 18, the bonds joining the oxygen and carbon atoms in compound (h) did not print well. Applicant is required to redraw said compound inserting bonds between the ethereal oxygen atoms and alkylene carbon atoms.

Applicant is required to fully address each of these issues in their response to this Office action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In describing component (4), Applicant has stated that the cationic entity is an onium salt *and* an organometallic salt. By contrast, page 8 of the disclosure states that the cationic entity is *selected from one of the* aforementioned moieties. Applicant should amend claim 12 to include proper Markush language to clarify this issue. Similarly, claim 17 presently reads in a manner that indicates that all of the compounds identified therein are concomitantly employed as photosensitizers. Proper Markush language should also be incorporated into this claim so that it is clear that these are different alternatives and are not necessarily used in concert.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-13 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Priou et al., U.S. Patent # 5,703,137. Priou et al. disclose an onium borate salt (column 2, lines 4-49) that is structurally equivalent to those of the instant invention as a photoinitiator for crosslinking epoxy-functionalized silicone oils (column 6, lines 59-63). They further contemplate the incorporation of polyaromatic photosensitizers including pyridine, ferrocene, thioxanthone, etc. A light radiation absorption profile is not expressly reported for these materials. Nonetheless, it is noted that Applicant has admitted on page 21 of the disclosure that thioxanthone derivatives are among those compounds that will inherently satisfy the requirement of having a residual light absorption of between 200 and 500 nm. Furthermore, Priou instructs in column 8, lines 30-32 that the irradiation wavelength should be between 200 and 400 nm hence the other photosensitizers named therein will also inherently absorb energy in the wavelength range set forth by the Applicant.

Applicant refers to their invention as a "dental" composition, or a composition that may be employed in various oral applications. In this connection they have claimed a

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"dental" filler as one of the essential components of their invention. According to section 2111.02 of the MPEP, if the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). See also *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) ("where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation"); *Kropa v. Robie*, 187 F.2d at 152, 88 USPQ2d at 480-81 (preamble is not a limitation where claim is directed to a product and the preamble merely recites a property inherent in an old product defined by the remainder of the claim). Insofar as many of the materials contemplated on page 26 and 27 are merely ubiquitous fillers employed in myriad applications, the claim will be anticipated provided that the reference discloses the addition of similar materials. Hence, the failure of the reference to mention dental fillers notwithstanding, claim 12 is anticipated because fumed silica is identified both by Applicant on page 27 and by Priou in column 7, lines 43-50 as a useful filler compound.

As for claim 15, several of these radicals are duplicated in column 6 of the reference.

As for claim 16, a number of these borate-based compounds are contemplated at the top of column 5.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-13, 15-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinmann et al., U.S. Patent # 6,245,828 in view of Castellanos et al., U.S. Patent # 5,468,902. Weinmann discloses a dental composition comprising (a) an epoxy-functionalized compound adhering to either of the two formulae shown in column 2, a second epoxide having a structure different than that of (a), (c) fillers, (d) an initiator and/or "accelerator, and (e) other adjuvants commonly incorporated into dental compositions. Numerous specific embodiments of component (a) are disclosed columns 3-16. Several of the compounds depicted therein feature disiloxane fragments having at least one epoxy group tethered thereto including (iv), (vii), (xi), (xvi), and (xxii) but the reference does not indicate whether or not these compounds are liquids at below 100° C. Nonetheless, each of the epoxides deemed suitable for component (b) in columns 16 and 17 is also identified by the Applicant in claim 18 as an appropriate crosslinkable silicone oligomer. Therefore, these compounds will, of course, inherently satisfy the melting point requirement set forth by Applicant.

Weinmann also contemplates the utilization of photoactivated initiators such as (eta-6-cumene)(eta-5-cyclopentadienyl)iron tetrafluoroborate, and (eta-6-cumene)(eta-5-cyclopentadienyl)iron hexafluoroantimonate, accelerators (which one of ordinary skill

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will appreciate is simply another way of naming a photosensitizer), and inorganic fillers e.g. quartz, silica, and soluble metal fluorides.

Notably, Weinmann does not disclose the utilization of photoinitiators having the structure reported by Applicant. Castellanos, on the other hand, teaches precisely the same onium borate salts and organometallic salts contemplated in claim 16. Moreover, they warn that initiators such as the antimonate-based salt employed by Weinmann have toxicity concerns associated with them (column 1, lines 25-28). Hence, it would have been obvious to one having ordinary skill at the time of the invention to substitute the borate salts volunteered by Castellanos for the antimonate salts disclosed by Weinmann to prepare a more benign composition. This is especially true in view of Weinmann's intent to use their composition to manufacture oral prostheses or filling materials.

As for claim 15, 3,4-epoxycyclohexylpropyl radicals are featured in every one of the polymerizable compounds disclosed by Weinmann.

#### ***Allowable Subject Matter***

Claims 14 and 17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Oxman et al., U.S. Patent # 6,025,406 is considered pertinent for their description of a cationically crosslinked polymer system comprising corresponding photoinitiators, photosensitizers, and fillers. However, they make only cursory mention



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of the epoxy-functionalized silicone without any mention of what the preferred incarnations of this component would be. Hence, it cannot be ascertained whether said silicone would have the material property stated in claim 12.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 703-605-1176. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

July 22, 2002



Robert A. Dawson  
Examiner  
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